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REMARKS/ARGUMENTS

In response to the objection to the drawings, new Figure 1 is filed herewith in which reference numeral 20 has been inserted.

Also, in this figure the distances "r" have been shown in response to the Examiner's objection to paragraph [0024] of the specification which, in addition, has been amended to make it clear that the origin is a point half way between the antennas 22b and 22c.

The same paragraph of the specification has also been amended to define the parameters k, j, m, n and q.

The Examiner's approval of these drawing and specification amendments is respectfully requested.

With reference to the Examiner's objection under 35 U.S.C. 112, second paragraph, against claim 5, the expression "said signal" does not appear in this claim, and it is believed that the Examiner intended to refer to claim 6, line 8, which has accordingly been amended to replace this term by the wording --between signals from said transmitter--.

Also, claim 8 has been cancelled.

This opportunity has also been taken to amend "said" at claim 1, line 3 to --a-- and to correct typographical errors in paragraphs [0013] and [0014] of the specification.

The Examiner's indication that claims 1 and 7 are allowed has been noted with appreciation.

With reference to the Examiner's rejection of claims 2 - 6 and 8 under 35 U.S.C. 103(a) as unpatentable over Brown et al., it is pointed out that the present invention employs inertial position measurement of the position of a mobile unit to provide an inertial position measurement signal, and phase difference triangulation of the inertial position measurement signal to correct the inertial position measurement signal.

In the illustrated embodiment of the invention, an inertial measurement signal is transmitted from an antenna 20 of a mobile unit 12 to antennas 22a - 22c of a base station 10. At the base station 10, phase difference triangulation of that inertial measurement signal is effected to provide a phase difference triangulation output which is then used to correct the inertial measurement signal.

No such arrangement is in any way disclosed or suggested in the Brown et al. reference.

Thus, as stated at column 2, lines 41 through 50 of the Brown et al. reference:-

> The present invention contemplates an attitude sensing system in which basic attitude information is provided by an inertial measurement unit and used to adjust the interferometric signals from a satellite navigation receiver in an optimized loop which combines the ability of the inertial measurement unit to track relatively rapid vehicle changes in attitude with the ability of the satellite navigation system to provide long term accuracy.

Therefore, this reference does not in any way suggest the use of an inertial position measurement to correct itself, by phase difference triangulation, but, on the contrary, corrects information from an inertial measurement unit by the use of satellite-derived signals.

As stated at column 4, lines 59 through 68:-

> A base 30 has mounted thereon an array of at least three satellite signal receiving antennas 32, 34, and 36 positioned relative to each other at the apexes of a triangle to operate as an interferometer. Signals from these antennas are applied to a processing electronics module 38 to be described in detail below. Within the base 30 an inertial measurement unit 40, which may be of any conventional design known in the art, provides an output signal representing an attitude matrix to the processing module 38.

As stated at column 4, lines 3 through 8:-

> The present invention utilizes the attitude information represented by the output of the inertial measurement unit, illustrated in FIG. 2, to provide a vehicle attitude signal but corrects that signal according to the attitude information gathered from a satellite receiver system.

The signal from a satellite, which is received by the antennas 32, 34 and 36, which are arranged in an interferometer array (see column 4, lines 22 through 24), is employed to provide an error signal which is processed along with inertial unit outputs "to produce optimal estimates of attitude for the vehicle, relationships positionally and angularly between the receiving antennas, and gyroscope error information" (see column 4, lines 29 through 34).

Therefore, what this reference teaches is, in fact, a device for providing attitude sensing based on combined inertial measurements and satellite interferometer signals.

There is not the slightest suggestion in this reference of employing an inertial measurement signal to correct itself by phase difference triangulation of the same signal.

The Examiner has alleged that

> broadcasting RF signals from a mobile device to a base station, and displaying the position data would have been well known. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a known base station, and a display for displaying the position information to the system of Brown in order to allow the correction data to be calculated from a remote processor to reduce the work load for the processor of the mobile unit, and to allow the user to view the present location he is in.

However, this is not what the present invention achieves, as will be readily apparent from the above discussion. Nowhere in the Brown et al. reference is there any suggestion of phase difference triangulation of a signal in order to correct inertial position data contained in that signal.

To emphasize this distinction, claim 2 has been amended to recite a phase difference triangulation apparatus responsive to signals from a mobile unit, and a data processor connected to a receiver at a base station and to the phase difference triangulation apparatus --for employing phase difference information from said phase difference triangulation apparatus to correct the inertial position data for drift--. As indicated above, there is no suggestion of such apparatus in the Brown et al. reference.

Claim 4 has been amended to recite a data processor responsive to --inertial position data from said receiver and phase difference information from said phase difference triangulation-- to provide an

output representing measurement of the position of a mobile unit corrected for drift. It is pointed out that this claim also recites a mobile unit, and a base station, the base station being provided with a receiver.

Claim 5 has been amended to recite a transmitter connected to an output of an inertial sensor on a mobile unit for broadcasting --an inertial position measurement signal-- and a base station including --a receiver responsive to the inertial position measurement signal, an interferometer responsive to the inertial position measurement signal and a processor...--. No such mobile unit and base station are in any way suggested by the Brown et al. reference, as indicated above.

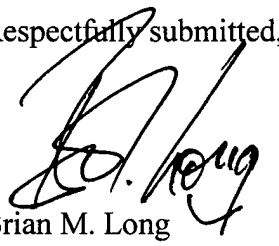
Claim 6 has been amended to recite a base station comprising a receiver --responsive to an inertial measurement signal broadcast by said transmitter-- and a phase detector responsive to phase differences --between the inertial measurement signal-- at second and third antennas to provide phase difference information.

In addition, new claim 9 has been added to the application, which recites the steps of --inertial sensing measurement of the position-- of a mobile unit, --transmission of the inertial sensing measurement as an RF signal from the mobile unit to a base station; phase difference triangulation of the RF signal at the base station; and employing the phase difference triangulation measurement to correct the inertial sensing measurement--.

None of these features is anticipated or suggested in the Brown et al. reference and, therefore, it is respectfully submitted that these claims clearly and patentably distinguish over the disclosure of that reference.

It is believed that the objections raised in this Official Action are overcome by this amendment and that the application is now fully in order for allowance, and early action to that end is courteously solicited.

Respectfully submitted,



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